

PREDICTING EQ-5D INDEX SCORES FROM PROMIS PROFILE 29 IN THE UNITED KINGDOM, FRANCE, AND GERMANY

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OBJECTIVES: Quality-adjusted life years (QALYs) are used for economic evaluations of clinical interventions. The EuroQoL (EQ-5D) index score is used as utility score for QALYs. It has been predicted in a US population sample from five PROMIS domain item banks: physical function, fatigue, pain impact, anxiety, and depression. The aim of this study is to validate this model in independent data from Europe and to compare it to a prediction model taking all seven PROMIS Profile domains into account.

METHODS: We collected PROMIS Profile 29 and EQ-5D data in the general population of the United Kingdom (n=1,509), France (n=1,501), and Germany (n=1,502). We compared agreement using Bland-Altman analyses between observed and predicted utility scores for the US prediction model and for country specific linear regression models estimated in these samples.

RESULTS: The EQ-5D predictions of the US model underestimated health utility on average for the UK by 0.10 (95%CI 0.09-0.10; RMSE 0.18) and for France by 0.08 (95%CI 0.08-0.09; RMSE 0.17) points, but not for Germany 0.00 (95%CI -0.01-0.00; RMSE 0.11). Predictions based on regression models estimated in these samples come with smaller, but still substantial root mean squared error (RMSE UK: 0.13, France: 0.13, Germany: 0.10). We found systematic deviations from the linear prediction.

CONCLUSIONS: Keeping in mind that EQ-5D index scores range from 0 to 1, predictions from the PROMIS Profile 29 using either linear model are imprecise, regardless of taking five or seven PROMIS Profile domains into account.